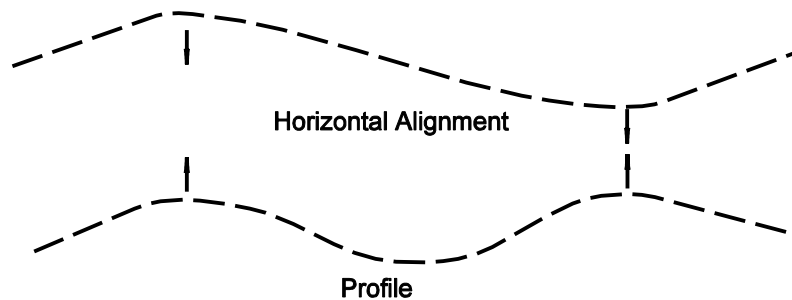


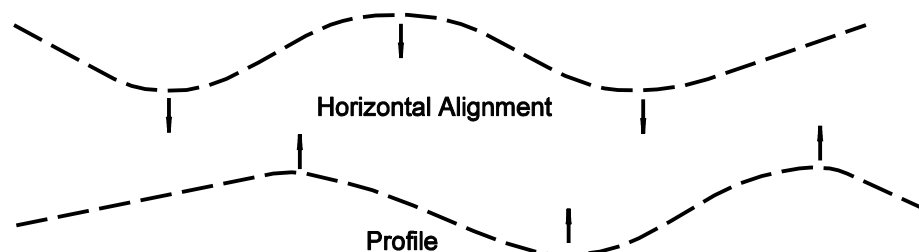
#### J. Coinciding Vertices in Horizontal and Vertical Dimensions

Note: The classic case of coordination between horizontal and vertical alignment in which the vertices of horizontal and vertical curves coincide, creating a rich effect of three-dimensional S-curves, composed of convex and concave helixes.



#### K. Coinciding Vertices with Single-Phase Skip

Note: A legitimate case of coordination: one phase is skipped in the horizontal plane, but vertices still coincide. The long tangent in plan is softened by vertical curvature.



#### L. Weak Coordination of Horizontal and Vertical Alignments

Note: A case with weak coordination where the vertical alignment is shifted half a phase with respect to horizontal alignment so the vertices coincide with points of inflection. The superelevation in this case occurs on grade, while crests and sags have normal crowned sections; in the first case, superelevation occurs on crests and sags, while grades have normal crowned sections.

Figure 4-13: Alignment and Profile Relationships in Roadway Design